

agencies. This enhanced the efforts of each agency and provided a coordinated approach to addressing problems and to communicating with the public.

The Metrolink Response

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I would like to take this opportunity to provide an overview of the Metrolink system and to describe how we responded after the earthquake. Metrolink started operations just 15 months before the earthquake in October of 1992. Metrolink is part of the Southern California Regional Rail Authority, which was established through a joint-powers agreement among five counties. The sole purpose of the authority is to plan, build, and operate commuter rail service.

The system has expanded very rapidly. The initial system included 112 miles when it was opened in 1992. By June of 1993, 196 miles were in operation. Currently, the system includes 346 miles. By 1995, the Metrolink system will encompass 500 miles on seven lines.

A number of factors have contributed to this growth. First, the bond measures passed in 1989 and 1990 earmarked adequate funds to build the system. The bond measures were largely a response to the significant increases in congestion experienced in the Los Angeles area. Between 1980 and 1990, vehicle miles of travel increased by approximately 60 percent, with only a 2 percent increase in road miles. Second, for the first time, freight railroads were willing to sell major portions of urban track. Between 1990 and 1993, public agencies purchased 700 miles of railroad rights-of-way and track, along with 700 acres of stations, yards, and other facilities. Slightly less than half of this is anticipated to be used for commuter rail. Third, county governments realized they would have to work together to implement a commuter rail system. Finally, improvements to existing

railroad rights-of-way are categorically exempt under California environmental law. This allowed immediate movement toward construction.

The Metrolink system uses existing railroad rights-of-way and freeway median rights-of-way. Where possible, existing stations have been renovated. The cost of the initial four lines was approximately \$600 million. This included almost 200 miles of track and the central maintenance facility. This averages out to approximately \$3 million a mile. The subsidy per trip is approximately \$0.28 per mile or \$8.70 for an average trip. The subsidy levels have been declining.

After the earthquake, key segments of the freeway system were broken and traffic, especially in the north, was disrupted. The rail lines fared much better. The Red Line bounced one foot vertically and one foot laterally, but remained relatively undamaged. Surface railroad tracks, especially in curves, moved as much as a foot laterally, but maintained gauge.

It was evident immediately after the earthquake that there was a need to expand Metrolink service to help maintain mobility. Service was not operated the day of the earthquake because of the need to inspect the system after each aftershock. The reassignment of vehicles into the area started immediately, however. Three trains were available due to the delay in the opening of the Orange County Line. Also, the MTA had purchased the Saugus Line to Palmdale a year earlier, so that the track was already owned.

Ridership levels were below normal on Tuesday, but on Wednesday, an additional 4,000 people rode the system. This continued through the next week. It was also evident that service would have to be extended to intercept commuters coming from the Antelope Valley where 300,000 people live. By Thursday, agreements had been reached with the cities of Lancaster and Palmdale that by the following Monday the system would be extended to Lancaster and two new stations would be open. The new stations were developed quickly, with at least six contractors working simultaneously. Also the Corps of Engineers and the SeaBees helped construct some stations, along with city and county public works departments. The response was truly a group effort.

Before the earthquake, daily system ridership was slightly under 1,000. Ridership peaked in the two weeks immediately after the earthquake and then leveled out. Caltrans was able to open part of the I-5/Route 14 interchange by the end of January. We knew that ridership would decline, partly because we had only 14,000 seats available for some 21,000 riders. Riders who purchased a February monthly pass could ride through March for free and free emergency trips were provided for firefighters, police, and other individuals.

Current ridership is about 3,000 after the reopening of the I-5 bridge and the Route 14 ramps. This is still four times greater than before the earthquake.

A number of capital improvements are being made on the line. The 78 mile trip took approximately 2 hours and 25 minutes. The extremely slow curves required trains to operate at about 28 miles an hour. This is unacceptable for long term service. Metrolink is working with the Federal Emergency Management Agency to improve the line. Initially, it was thought that reconstruction of the I-5 interchange would take about a year. Although I would like to compliment Caltrans for doing an extremely fine job of rebuilding the freeways, part of me wishes it had taken a little longer.

Based on a preliminary analysis, four improvements were identified to reduce the travel time from 2 hours and 25 minutes to 1 hour and 35 minutes. First, ten miles of new track had to be built in the Antelope Valley to get off the Southern Pacific mainline. Second, curves needed to be straightened in the 33-mile Soledad Canyon area. These two steps saved 40 minutes in travel time. Third, one tunnel needed to be repaired. Although it did not sustain much damage, standing water in the tunnel became

a problem. Fourth, ongoing work approaching Union Station in downtown Los Angeles is being completed.

A number of activities have been undertaken to accomplish this. On an average day since the earthquake, 6,400 cubic feet of earth has been moved, 900 tons of ballast has been spread, 1,500 feet of rail has been laid, and 300 ties have been set or replaced. All of this is being done under freight and Metrolink traffic. These repairs and improvements have cost approximately \$50 million, or \$1 million a mile. Most of the funding has come from the Federal Emergency Management Agency and the Los Angeles County Metropolitan Transit Authority (LACMTA).

In many ways, the earthquake put Metrolink on the map. Before the earthquake, probably only about 10 percent of the residents in Los Angeles knew what Metrolink was. Now, this number is probably 80 or 90 percent. The response by Metrolink showed that the system could be counted on and that it is an important part of the overall transportation system in the Los Angeles area.